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Manganese in atherogenesis: Detection, origin, and a role

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Abstract

The role of transition metal ions in atherogenesis is controversial; they may be involved in hydroxyl radical generation and can also catalyze the reactive oxygen species neutralization reaction as cofactors of antioxidant enzymes. Using EPR spectroscopy, we revealed that 70% of aorta specimens with atherosclerotic lesions possessed superoxide dismutase activity, 100% of the specimens initiated Fenton reaction and demonstrated the presence of manganese paramagnetic centers. The sodA gene encoding manganese-dependent bacterial superoxide dismutase was not found in the samples of atherosclerotic plaques by PCR using degenerate primers. The data obtained indicate prospects of manganese analysis as a marker element in the express diagnostics of atherosclerosis. © Pleiades Publishing, Ltd., 2011.

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Keywords

Atherosclerosis, Manganese, SodA gene, Superoxide dismutase